ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

Environmental Division
Fort Collins, Colorado

Total Extractable Petroleum Hydrocarbons (Diesel)

Case Narrative

Boston Chemical Corp

Gulf Coast

Work Order Number: 1008161

1. This report consists of 1 water sample. The sample was received cool and intact by ALS on 08/13/2010.

2. The water sample was extracted by adding hexane to the water sample and shaking the resulting two phase solution according to SOP 603 Revision 11, which was developed at ALS. The hydrocarbons partition into the hexane layer, which is then removed for analysis.

3. The extract was then analyzed using GC with a DB-5.625 capillary column and a flame ionization detector (FID) according to SOP 406 Revision 14 generally based on SW-846 Method 8000B and Method 8015B. The procedures are based on this general method because SW-846 does not have a specific method for total extractable petroleum hydrocarbons (TEPH) or diesel range organics. The only true modification from this method is that TEPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks. All positive results were quantitated using the responses from the initial calibration curve using the external standard technique. Also, a confirmation column is not used, because the analyte is a multicomponent mixture and the specific carbon range of the peaks detected is specified on the individual sample reporting forms.

4. All initial and continuing calibration criteria were met.

5. The method blank associated with this project was below the reporting limit, but above the MDL for motor oil range organics.
   Due to the nature of the quadratic curve for motor oil, it is impossible to achieve a value less than the MDL(<MDL). All values between the report limit and the MDL will be “B” flagged.

6. All laboratory control sample recoveries were within the acceptance criteria.

7. Since a sample from this order number was not the selected quality control (QC) sample, matrix specific QC results are not included in this report.

8. The sample was extracted and analyzed within the established holding time.

9. All surrogate recoveries were within the acceptance criteria.

10. The sample was analyzed at a dilution in order to bring the target analytes within the calibration range of the instrument. The reporting limits have been adjusted accordingly.

11. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in SOP 939 Revision 3.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mindy Norton — 9.1.10
Mindy Norton
Organics Primary Data Reviewer
Date

Dan Sherman — 9-02-10
Organics Final Data Reviewer
Date

ALS
Data Qualifier Flags
Fuels

G: **This flag indicates that a pattern resembling gasoline was detected in this sample.**

D: **This flag indicates that a pattern resembling diesel was detected in this sample.**

M: **This flag indicates that a pattern resembling motor oil was detected in this sample.**

C: **This flag indicates that a pattern resembling crude oil was detected in this sample.**

4: **This flag indicates that a pattern resembling JP-4 was detected in this sample.**

5: **This flag indicates that a pattern resembling JP-5 was detected in this sample.**

H: **This flag indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.**

L: **This flag indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.**

Z: **This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:**
gasoline
JP-8
diesel
mineral spirits
motor oil
Stoddard solvent
bunker C

Multiple flags may be used to indicate the presence of more than one product or component.

ALS
Data Qualifier Flags
Chromatography and Mass Spectrometry

U or ND:	**This flag indicates that the compound was analyzed for but not detected.**
J:	**This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the data indicate the presence of a compound that meets the identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.**
B:	**This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.**
E:	**This flag identifies compounds whose concentration exceeds the upper level of the calibration range.**
A:	**This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.**
X:	**This flag indicates that the analyte was diluted below an accurate quantitation level.**
***:**	**This flag indicates that a spike recovery is outside the control criteria.**
+:	**This flag indicates that the relative percent difference (RPD) exceeds the control criteria.**

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 1008161
Client Name: Boston Chemical Corp
Client Project Name: Gulf Coast
Client Project Number:
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
DWH 151 W	1008161-1		WATER	10-Aug-10	6:35

ALS Environmental

Winnipeg, MB 745 Logan Avenue, R3E 3L5 Toll Free: 1-800-607-7555 Fax: 204-945-0753
Thunder Bay, ON 1081 Barton Street, P7B 5N3 Tel: 807-623-6463 Fax: 807-623-7566
London, ON, #29 - 309 Exeter Road, N6L 1C1 Tel: 519-652-6044 Fax: 519-652-0671
Burlington, ON #6 - 5420 Mainway Drive, L7L 6A4 Tel: 905-331-3111 Toll Free: 1-866-257-3864 Fax: 905-331-4567
Waterloo, ON #1 - 60 Northland Road, N2V 2B8 Toll Free: 1-800-668-9878 Fax: 519-886-9047
Ottawa, ON #13 - 210 Colonnade Road, K2E 7L6 Tel: 613-731-1005 Fax: 613-738-1107

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1008161

CHAIN OF CUSTODY FORM

SEND REPORT TO:

COMPANY:	Boston Chemical Data Corp.	ATTN:	M. Kaltofen
ADDRESS:	2 Summer Street Suite 14		
CITY:	Natick STATE: MA	ZIP CODE:	01760
TEL:	508 651 1661 FAX:	SAMPLER:	Strongbear Silva
PROJECT NAME AND NO:	Gulf Coast	QUOTE NO:	
PO NO.:	ALS CONTACT:	Ron McLeod	
REPORT FORMAT:	☐ HARDCOPY ☒ EMAIL - ADDRESS:	kaltofen@aol.com	
	☐ FAX ☒ EXCEL ☒ PDF ☐ OTHER:		

ANALYSIS REQUESTED:

WO#	SAMPLE IDENTIFICATION	DATE / TIME COLLECTED YYYY-MM-DD	TIME	MATRIX	VOCs	PAH SIM	DRO	GRO	TPH.	Biomarkers	TPH with Chromatogram	PAH	dispersive active ingredients						NOTES (sample specific comments, due dates, etc.)
(1)	DWH151W	2010-10-08	10:35	water															

FOR LAB USE ONLY

TURN AROUND REQUIRED:	◉ ROUTINE ○ RUSH SPECIFY DATE: _____ (surcharge may apply)	RELINQUISHED BY: Strongbear Silva	DATE: 8/19/10	RECEIVED BY: BK	DATE: 11-Aug-10
SEND INVOICE TO: Smith	☐ SAME AS REPORT ☒ DIFFERENT FROM REPORT (provide details below)		TIME: 3:30PM		TIME: 12:00
INVOICE FORMAT: Stag	☐ HARDCOPY ☐ PDF ☐ FAX	RELINQUISHED BY:	DATE: 8-13-10	RECEIVED BY:	DATE: 8-13-10
SPECIAL INSTRUCTIONS: Invoice to third party as agreed			TIME: 0930		TIME: 0930

FOR LAB USE ONLY

Cooler Seal Intact? ✓Yes ___No ___N/A	Sample Temperature: 2 °C Frozen? ___Yes ✓No	Cooling Method? ___Icepacks ✓Ice ___None

CONDITION OF SAMPLE UPON RECEIPT FORM

Client: ALS Burlington Workorder No: 1008161

Project Manager: JK Initials: CRO Date: 8-13-10

1. Does this project require any **special handling** in addition to standard Paragon procedures?		YES	NO
2. Are custody **seals** on **shipping containers** intact?	NONE	YES	NO
3. Are Custody seals on **sample containers** intact?	NONE	YES	NO
4. Is there a **COC (Chain-of-Custody) present** or other representative documents?		YES	NO
5. Are the **COC and bottle labels complete and legible**?		YES	NO
6. Is the **COC in agreement** with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	NO
7. Were **airbills / shipping documents** present and/or removable?	DROP OFF	YES	NO
8. Are all aqueous **samples requiring preservation preserved correctly?** (excluding volatiles)	N/A	YES	NO
9. Are all aqueous **non-preserved samples pH 4-9**?	N/A	YES	NO
10. Is there **sufficient sample** for the requested analyses?		YES	NO
11. Were all samples placed in the **proper containers** for the requested analyses?		YES	NO
12. Are all samples within **holding times** for the requested analyses?		YES	NO
13. Were all sample containers received **intact**? (not broken or leaking, etc.)		YES	NO
14. Are all samples requiring **no** headspace (**VOC, GRO, RSK/MEE, Rx CN/S, radon**) headspace free? **Size of bubble:** ____ < green pea ____ > green pea	N/A	YES	NO
15. Do perchlorate LCMS-MS samples **have** headspace? (at least 1/3 of container required)	N/A	YES	NO
16. Were samples checked for and free from the presence of **residual chlorine?** (Applicable when PM has indicated samples are from a chlorinated water source; note if field preservation with sodium thiosulfate was not observed.)	N/A	YES	NO
17. Were the samples **shipped on ice?**		YES	NO
18. Were cooler temperatures measured at 0.1-6.0°C? **IR gun used*:** #2 #4	RAD ONLY	YES	NO

Cooler #:	1							
Temperature (°C):	5.4							
No. of custody seals on cooler:	0							
DOT Survey/ Acceptance Information — External µR/hr reading:	12							
Background µR/hr reading:	11							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16

If applicable, was the client contacted? YES / NO / NA Contact: M. Kaltofen Date/Time: 8/12/10

Project Manager Signature / Date: 8/17/10

*IR Gun #2: Oakton, SN 29922500201-0066 *IR Gun #4: Oakton, SN 2372220101-0002

From: Origin ID: YATA (905) 331-3111
Brandon Gingrich
ALS Environmental
5420 Mainway Drive unit 5

Burlington, ON L7L6A4
CANADA

FedEx Express

J1020100525032S

Ship Date: 12AUG10
ActWgt: 17.0 LB
CAD: 8904531/INCA3060

Dims: 10 X 10 X 12 IN

REF:
DESC-1: Environmental Samples
DESC-2:
DESC-3:
DESC-4:

COUNTRY MFG: CA
CARRIAGE VALUE: 2.00 CAD
CUSTOMS VALUE: 2.00 CAD
T/C: S 311493060 D/T: S 311493060
SIGN: Brandon Gingrich
EIN/VAT:
PKG TYPE: CUSTOMER

SHIP TO: (970) 490-1511 BILL SENDER

Jeff Kujawa
ALS Environmental
225 COMMERCE DR

FORT COLLINS, CO 80524
US

TRK# 0430 7938 1823 2090

A2
INTL PRIORITY
ISR

80524
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Diesel Range Organics

Method SW8015M_MOB

Method Blank

Lab Name: ALS Environmental -- FC

Work Order Number: 1008161

Client Name: Boston Chemical Corp

ClientProject ID: Gulf Coast

Lab ID: EX100816-1MB

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 16-Aug-10
Date Analyzed: 19-Aug-10
Prep Method: METHOD

Prep Batch: EX100816-1
QCBatchID: EX100816-1-1
Run ID: HCD100819-3A
Cleanup: NONE
Basis: N/A
File Name: F3F36892

Sample Aliquot: 160 ml
Final Volume: 4 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
68334-30-5	DIESEL RANGE ORGANICS	1	0.5	0.5	U	
	MOTOR OIL RANGE ORGANICS	1	0.26	0.5	J	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	1.18		1.25	94	57 - 132

Data Package ID: *HCD1008161-1*

Diesel Range Organics

Method SW8015M_MOB

Sample Results

Lab Name: ALS Environmental -- FC
Work Order Number: 1008161
Client Name: Boston Chemical Corp
ClientProject ID: Gulf Coast

Field ID: DWH 151 W
Lab ID: 1008161-1

Sample Matrix: WATER
% Moisture: N/A
Date Collected: 10-Aug-10
Date Extracted: 16-Aug-10
Date Analyzed: 20-Aug-10
Prep Method: METHOD

Prep Batch: EX100816-1
QCBatchID: EX100816-1-1
Run ID: HCD100820-3A
Cleanup: NONE
Basis: As Received
File Name: F3F36905

Sample Aliquot: 160 ml
Final Volume: 4 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
68334-30-5	DIESEL RANGE ORGANICS	5	6.1	2.5	H	
	MOTOR OIL RANGE ORGANICS	5	310	2.5	M,B	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	0.872		1.25	70	57 - 132

The chromatogram for DIESEL RANGE ORGANICS indicates the presence of hydrocarbons in the range of C16-C21.
The chromatogram for MOTOR OIL RANGE ORGANICS indicates the presence of hydrocarbons in the range of C21-C40+.

Data Package ID: *HCD1008161-1*

Diesel Range Organics

Method SW8015M_MOB

Laboratory Control Sample

Lab Name: ALS Environmental -- FC

Work Order Number: 1008161

Client Name: Boston Chemical Corp

ClientProject ID: Gulf Coast

Lab ID: EX100816-1LCS

Sample Matrix: WATER
% Moisture: N/A
Date Collected: N/A
Date Extracted: 08/16/2010
Date Analyzed: 08/19/2010
Prep Method: METHOD

Prep Batch: EX100816-1
QCBatchID: EX100816-1-1
Run ID: HCD100819-3A
Cleanup: NONE
Basis: N/A
File Name: F3F36893

Sample Aliquot: 160 ml
Final Volume: 4 ml
Result Units: MG/L
Clean DF: 1

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
68334-30-5	DIESEL RANGE ORGANICS	5	4.06	0.5		81	36 - 150%

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	1.12		1.25	90	57 - 132

Data Package ID: *HCD1008161-1*